

From owner-qrp-1@netcom.com Sat Feb 11 19:36:04 1995  
Date: Sat, 11 Feb 1995 10:46:11 -0600 (CST)  
From: Jeff Gold <JMG@tntech.edu>  
Subject: 30-40  
Message-Id: <01HMX5869T60CYZ1UL@tntech.edu>

All,

anyone know NN1G's email address. Started to solder today. even though I got the kit from Small Wonders.. got the old board. .and it really is solder unfriendly.. kinda repels it..first kit I have had this problem with. .cleaned it .. and such.. no help.. it can be soldered on.. but sure isn't fun.

thanks

Jeff, AC4HF

From owner-qrp-1@netcom.com Sat Feb 11 20:58:28 1995  
From: teda@meaddata.com (Ted Albert)  
Message-Id: <9502112229.AA02535@rain.meaddata.com>  
Subject: Re: 79'er night results  
Date: Sat, 11 Feb 1995 17:29:53 -0500 (EST)

>  
>  
> >> grew in strength over the next few minutes and there he was, W1FMR/X.  
>  
> What does the /X stand for?  
>  
> a newbie question from  
> -----  
> Steve Flatt - KC6PLW                   Internet :   sflatt@gislab.teale.ca.gov  
> Sacramento CA U.S.A.               Packet: kc6plw @ n0ary.#nocal.ca.usa.na  
> -----  
>

In this case it means the station is running xtal control and is used to identify the color burst xtal rigs. I was working on one for this event which is why I got a late start listening. Hopefully my homebrew rig will be ready next week.

73 de Ted, KF8EE  
QRP ARCI #8544  
G-QRP # 8661

From owner-qrp-1@netcom.com Sat Feb 11 09:41:05 1995  
From: RobCap@aol.com  
Date: Sat, 11 Feb 1995 08:10:41 -0500

Message-Id: <950211080818\_18839374@aol.com>

Subject: Answer to your questions

I used the old style PL-259, and mounted the flange on the outside of the case. Because the lower mounting screws would interfere with the board, I used only the upper screws, which were quite solid enough.

I cut and de-soldered the two wire connections of the BNC at the board (ant and ground), leaving me with the two heavy posts. Then I de-soldered the posts to the best of my ability, about 95% solder removal. The plated through holes make it difficult to get out all of the solder. I used a solder sucker, and perhaps you would get better results with braid. I delicately slid a flat instrument in between the board and the BNC mount, and pried the unit out alternating one side at a time while heating the post. After ten small iterations, it came out.

The board had some flexure, and it made me nervous, but fortunately it was not damaged. Much better to get it right the first time, if you can.

Let me know how it goes. It was worth it to me. I really don't think BNC connectors are appropriate for HF work.

73,

Rob, WA3ULH

Incedentally, I responded last night, but my response came back as not-deliverable. I went back and used your original e-mail address, and also posted it to the QRP-list so you would be sure to get it. For your information, here is the address that didn't work: bgobrick@nlnet.nf.ca

From owner-qrp-l@netcom.com Sun Feb 12 01:29:20 1995  
From: Mike.Czuhajewski@hambbs.wb3ffv.ampr.org (Mike Czuhajewski)  
Subject: BNC connectors inappropriate for HF?  
Date: Sat, 11 Feb 95 22:45:40 EST5EDT  
Message-Id: <1995Feb11.224540.28165@wb3ffv.ampr.org>

In your recent posting to Bob Gobrick, CC to qrp-l@netcom.com, you said you didn't consider BNC connectors appropriate for HF. Could you please explain the rationale behind that? I use them almost exclusively in my station. No one can seriously argue that so-called UHF connectors are superior to BNC connectors except for power handling capability, and since we are QRPers here that isn't a major concern. The UHF connectors do have the advantage of being mechanically more robust, but that's not related to frequency coverage. BNCs have the convenience of smaller size and quick disconnect, as well as being a 50 ohm connector. Of course, I don't buy BNC connectors--I scrounge them

and have a considerable supply (they are easily reusable); if I were paying real money for them, I'd probably stick with UHF connectors, which are cheaper and somewhat easier to get, and entirely suitable at HF. 73 and Queue Our Pea DE WA8MCQ

--

Mike Czuhajewski, user of the UniBoard System @ wb3ffv.ampr.org  
E-Mail: Mike.Czuhajewski@hambbs.wb3ffv.ampr.org  
The WB3FFV Amateur Radio BBS - Located in Baltimore, Maryland USA  
Supporting the Amateur Radio Hobby, and TCP/IP InterNetworking

From owner-qrp-l@netcom.com Sun Feb 12 09:06:36 1995  
From: RobCap@aol.com  
Date: Sun, 12 Feb 1995 06:48:41 -0500  
Message-Id: <950212064841\_19662291@aol.com>  
Subject: Re: BNC connectors inappropriate for HF?

It's not a question of technical inferiority or superiority. Rather, it is a matter of convention and convenience.

In my "Tackle Box" station to go, I have made quite an investment in making sure that I have the right cables with me. I have standardized on a 5.5 mm/2.1 mm DC coaxial cable (2.5 mm would have been OK), and I have standardized on the PL-259.

Look at all of your ancillary equipment. Autek antenna analyzer, PL-259. MFJ SWR analyzer, PL-259. MFJ back-up rig (the 9020) PL-259, OHR Power meter PL-259, etc.

OK, so you bring a bunch of short PL-259 to PL-259 connectors with you, and one weirdo PL-259 to BNC. What happens if that particular BNC connector opens up? Then you have to fix it. You're less likely to have a spare. And if you happen to forget one cable, if it's the one with the BNC you're in a fix. Yes, Radio Shack sells a BNC to PL-259 adaptor, but that's a bit less elegant, and the heavy cabling pulls my little Sierra right up off the table.

Again, the BNC works fine, but standards are a very good thing. And there just isn't a lot of QRP equipment and accessories that use it.

Sure, BetaMax is a perfectly good workable technology and format. Probably just as good as VHS. Just try renting one at Blockbuster. (hi)

73,

Rob, WA3ULH

From owner-qrp-l@netcom.com Sat Feb 11 22:03:20 1995  
Message-Id: <9502112355.AA29113@ig1.att.att.com>  
From: mvjfm@mvubr.att.com (James M Fitton +1 508 960 2577)

Date: 11 Feb 95 18:52:00 -0500  
Subject: Colorburst....

Band was sure strange last Thurs. eve. for the Colorburst  
79er XTAL transmitter (3.579 MHz) CW sprint.

Mike, W3TS and others, listened and called for an hour and  
heard NIL.

NF0R in MO, and W1FMR in NH, QSO'd easily.....

I suggest calling, and then moving and calling !

I heard a few fierce TV hetrodynes, and if anyone was  
transmitting under them, they were lost.

Operating with Xtal control takes special technique.....  
(By the time we learn, the contest will be over)

See you 9 - 10 p.m. EST each Thurs in Feb...

Jim W1FMR

From owner-qrp-l@netcom.com Sat Feb 11 19:30:48 1995  
Date: Sat, 11 Feb 1995 17:02:49 GMT  
From: Goran Hosinsky <hosinsky@royac4.royac.iac.es>  
Message-Id: <9502111702.AA06256@royac4.royac.iac.es>  
Subject: Connectors for modules?

When building modules in separate boxes, for example VFO+TX+RX+Extras,  
signal connections are best made with BNC and coax. But what is best  
for the sundry contoll lines and power? Connector should be good quality,  
small, resonable priced. I have been thinking of using the telephone plug  
type wich comes with up to 8 poles and looks like being gold coated. But  
how much power can they accept?  
Any better ideas for doing the connections?

73 Goran EA8YU hosinsky@royac.iac.es

From owner-qrp-l@netcom.com Sun Feb 12 00:36:08 1995  
Message-Id: <199502120154.RAA21023@holonet.net>  
Subject: Re: Connectors for modules?  
Date: Sat, 11 Feb 95 17:54:44 PST

From: John Seboldt <rohrwerk@holonet.net>

> When building modules in separate boxes, for example VFO+TX+RX+Extras,  
> signal connections are best made with BNC and coax. But what is best  
> for the sundry controll lines and power?

Maybe DB9, DB25, etc. connectors? I have gotten by with feedthru insulators and hookup wire to interconnect; perhaps coax braid around the lines would be an extra help.

The ultimate might be from Mouser Electronics: there is a series of mixed contact D-sub connectors that could in theory handle everything except perhaps high power RF. You can get plugs and sockets with some fixed small pins, and/or some slots for user installed high voltage, high power, or coaxial contacts (50 or 75 ohm no less!).

In a DB15 shell, you can get 3 large custom contacts, or 2 custom and 5 small fixed contacts. In a DB25 you can get 5 custom, or 3 custom and 10 small fixed. In a DB37 there is space for 8 custom contacts.

The DB25 shells range from \$1.32 to \$4.64 each; coaxial contacts are a bit less than \$4 each. High current contacts (20 amp rating -- stoke it up, OM!) for your QRO PA are \$1.72 plug, 3.46 receptacle. Check the Mouser catalog for details -- not cheap, but very elegant. Someday I'll go with them, but right now I don't want things looking too neat :-).

John KOJD  
Minneapolis, MN

From owner-qrp-1@netcom.com Sun Feb 12 03:45:14 1995  
Date: Sat, 11 Feb 1995 21:32:35 -0800 (PST)  
From: "John D. Spittle" <jds@freenet.vancouver.bc.ca>  
Subject: Re: Connectors for modules?  
Message-Id: <Pine.3.89.9502112129.A3274-0100000@freenet.vancouver.bc.ca>

On Sat, 11 Feb 1995, Goran Hosinsky wrote:

>  
> When building modules in separate boxes, for example VFO+TX+RX+Extras,  
> signal connections are best made with BNC and coax. But what is best  
> for the sundry controll lines and power? Connector should be good quality,  
> small, resonable priced. I have been thinking of using the telephone plug  
> type wich comes with up to 8 poles and looks like being gold coated. But  
> how much power can they accept?  
> Any better ideas for doing the connections?

>  
Yes. Hardwire the modules together before all these goldplated

connectors wind up costing you more than the modules themselves! What's wrong with Molex type connectors if you must take them apart without a soldering iron? 72 Derry VE7QK

From owner-qrp-1@netcom.com Sun Feb 12 05:38:33 1995  
Date: Sun, 12 Feb 1995 08:18:29 GMT  
From: Goran Hosinsky <hosinsky@royac4.royac.iac.es>  
Message-Id: <9502120818.AA06633@royac4.royac.iac.es>  
Subject: Connectors for modules?

Hello Derry,  
I want to be able to change between moduels and to transport them for use at the beach, then a soldering iron is not practical.

Anyhow looks like the boxed modules idea was not so bright - cost of boxes and connectors will be too high even if I build them out of PC board material.

Thans for your comments  
73 Goran EA8YU

From owner-qrp-1@netcom.com Sun Feb 12 00:05:45 1995  
From: Don\_Burns-EPUR01@email.mot.com  
Date: 11 Feb 95 20:23:56 -0600  
Subject: Greetings QRPers  
Message-Id: <"Macintosh \*/PRMD=MOT/ADMD=MOT/C=US/"@MHS>

I saw reference to this group the other day on the Boatanchors List and decided to stop by to see what happens here. Have not worked any QRP in many years but used to do so in Chicago on 160 meters. Have been listening a lot lately down on VLF and am becoming intrigued about getting on down there. Does anyone on the list do any work on 1750 meters? I understand the power is limited to one watt.

--

Don Burns Plantation, FL  
K4GHD

From owner-qrp-1@netcom.com Sat Feb 11 05:43:37 1995  
Date: Sat, 11 Feb 1995 08:43:26 GMT  
From: frank@yorks.demon.co.uk (FRANK W LEE, G3YCC)  
Message-Id: <334@yorks.demon.co.uk>  
Subject: Home brew components

There has been some messages about making a rig using only home made components. It would be interesting to know more about what people found and used to make simple gear during WW2 in prisoner of war camps. I read an article by someone who had been through this unfortunate experience and had employed an

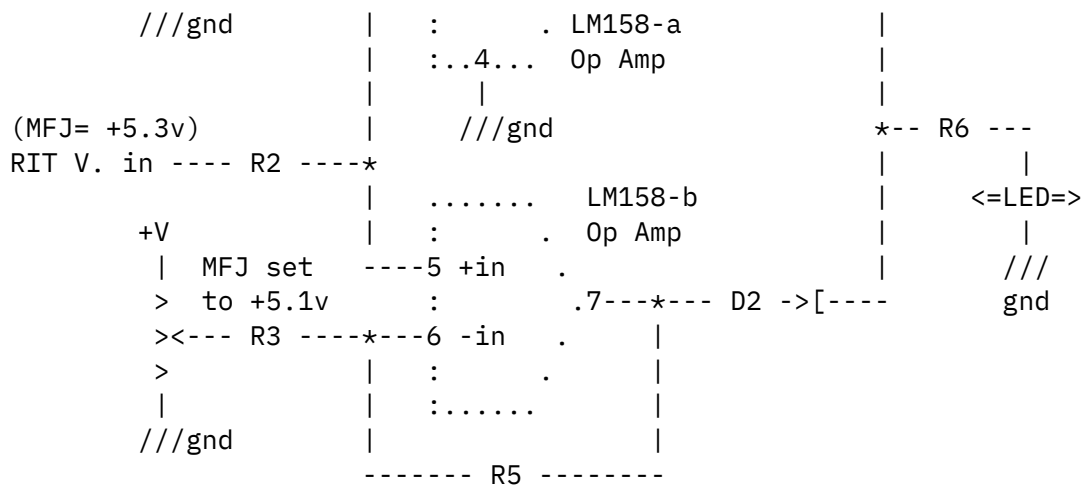
Have fun

From owner-qrp-l@netcom.com Sat Feb 11 20:07:13 1995  
Date: Sat, 11 Feb 1995 16:17:29 -0500 (EST)  
From: CEBIK@utkvx.utk.edu  
Subject: Interesting HB rig  
Message-Id: <Pine.3.89.9502111618.A541543559-0100000@utkvx.utk.edu>

LB, W4RNL

After receiving 6 requests for how I got the MFJ's to turn on an LED when the RIT is off of zero, decided to load up the circuit and post. The quasi-lengthy description offered for those not familiar with op amps/comparators or for those wanting a different application.

R1-R3: 10K  
R4-R5: 100K-1 MEG  
R6: ~2K for +V=+12V  
D1-D2: 1N918 or sim  
U1: LM158 8-pin, single  
supply dual op amp  
LED: your choice



This circuit was built for the MFJ rigs, but could easily be applied to anything. In the MFJ, the RIT volt. is +5.3v with no offset, and varies +/-0.7v or so from one RIT extreme to the other. The circuit uses a low power single supply 8-pin IC op amp, the LM158, as a window comparator. The pot on R1 is set for +5.5v and applied to IC pin 3 and the RIT volt. to pin 2. When RIT volt. >5.5v, pin 1 output goes from 0V to about +V. The pot on R3 is set for +5.1v and applied to IC pin 6. When RIT volt. less than 5.1v, output pin 7 will go from 0v to about +V. Diodes D1-D2 form an "OR" gate, such that when either op amp output goes to +V, one of the diodes will pass the current to illuminate the LED.

None of the values shown are critical. Virtually any pot value can be used, since its just a voltage divider to make any voltage you want between gnd and +V. (Lower values than 10K will however draw more current from your precious NiCads!). One could argue whether R1 and R3 are really neccessary. R4 and R5 just clamp the open loop gain of the op amps to something so the outputs don't chatter with noise. In fact, if you find this a problem with false triggering, place 0.1uF caps or greater on the pot wipers. Only real caution is to make sure the input (RIT) voltage never exceeds +V. In the case of the MFJ's, +V can be either the +10v REF supply or the +12v. (I used the +10v).

In the MFJ, ckt draws <1mA with LED OFF; ~3mA with LED ON.

In operation, with the RIT control at the center detent position, the LED will be off. As soon as you move the RIT control (depending upon how tight you set the two pots) the LED will illuminate. With the LED OFF (no RIT), the LED will illuminate when you transmit, since the RIT is shifted 700Hz on XMIT to generate the sidetone. Since sidetone switching comes off the key line, the RIT LED will show the actual dits and dahs while the XMT will show the QSK setting.

This circuit can be used to monitor anything ... battery voltage, AGC, SWR volt., anything you want to monitor and have an LED illuminate when



an upper or lower limit is exceeded. If you swap the polarity of the op amp inputs (the - and + inputs) it will operate in reverse - the LED will be ON when the input voltage is within the window set by the two pots.

Have fun and good luck  
72 de NA5N (pharden@nrao.edu)

-----  
From owner-qrp-1@netcom.com Sat Feb 11 19:44:29 1995  
Subject: Oak Hills kits  
From: brian.carling@acenet.com (Brian Carling)  
Message-Id: <2a6.10495.500@acenet.com>  
Date: Sat, 11 Feb 1995 10:06:00 -0500

This message was from WILLIAM BARNES to ALL,  
originally in conference AR-HOMEBRE  
and was forwarded to you by BRIAN CARLING.

-----  
ubc.ca>  
Newsgroups: rec.radio.amateur.homebrew  
Organization: The University of British Columbia

Has anyone built the Oak Hills \$219.95 QRP transceiver kit. If so, how did it go? What test equipment was required for calibration, etc. Any comments on kit quality with respect to Ten-Tec or Hamtronics kits?

73,

Bill -- VE7MEW

---

~ SLMR 2.1a ~ Make a joyful noise unto the Lord!

From owner-qrp-1@netcom.com Sat Feb 11 20:45:40 1995  
Date: Sat, 11 Feb 1995 10:05:54 -0500 (EST)  
From: CEBIK@utkvx.utk.edu  
Subject: paint notes  
Message-Id: <Pine.3.89.9502111029.A541591166-b110000@utkvx.utk.edu>

--Boundary (ID /7Gc5xfcaMYeHUwGtZB16A)  
Content-type: TEXT/PLAIN; CHARSET=US-ASCII

sorry to use this method to get a reply to Bob, but our system refused to deliver it to him.

On Sat, 11 Feb 1995, PMDF Mail Server wrote:

> The message could not be delivered to:

> Addressee: bgobrick@nlnet.nf.ca

> Reason: Illegal host/domain name found.

--Boundary (ID /7Gc5xfcaMYeHUwGtZBl6A)

Content-id: <Pine.3.89.9502111029.A541591166@utkvx.utk.edu>

MIME-version: 1.0

Content-type: MESSAGE/RFC822

Received: from utkvx.utk.edu by utkvx.utk.edu (PMDF V4.3-13 #6815)

id <01HMX1MvY8IG8YG6F2@utkvx.utk.edu>; Sat, 11 Feb 1995 09:02:16 -0500 (EST)

Date: Sat, 11 Feb 1995 09:02:15 -0500 (EST)

>From: CEBIK@utkvx.utk.edu

Subject: Re: another thought on painting for texture

In-reply-to: <Pine.OSF.3.91.950210195442.14217C-1000000@terra.nl.net.nf.ca>

Resent-to: bgobrick@nl.net.nf.ca

To: Robert Gobrick <bgobrick@nl.net.nf.ca>

Message-id: <Pine.3.89.9502110800.A541591166-0100000@utkvx.utk.edu>

MIME-version: 1.0

Content-type: TEXT/PLAIN; charset=US-ASCII

Content-transfer-encoding: 7BIT

Bob,

Thanks for the kind remarks. Actually, I wash and do the initial surfacing using SOS or Brillo pad. Soap cleans of almost anything, and the scratching gets the rest. Then, I use "00" to "0000" steel wool to refine the finish, remove any "Brillo burrs," and set up the panel for painting. Use a blast of air or a fine clean brush/soft rag to remove the dust. (I never use a tack cloth on metal--they can leave a residue.)

I tend to prefer fine steel wool to emory cloth, since the soft pad evens out my very uneven hand pressures and gets into tight corners pretty well. But that is a matter of personal preference based on too many years of learning stuff the hard way. I

have made panels from 20-gauge flashing aluminum (double thickness), and it has responded well to the steel wool treatment. So aluminum box thickness should also do well. I have also successfully used it to scratch prepainted cheap steel cases before repainting to my shack's standard home brew = light blue panel, black case/shell motif.

Hope some of this is useful.

-73-

LB, W4RNL

--Boundary (ID /7Gc5xfcaMYeHUwGtZBl6A)--

From owner-qrp-1@netcom.com Sat Feb 11 22:16:10 1995

From: BCdlr@aol.com  
Date: Sat, 11 Feb 1995 19:29:54 -0500  
Message-Id: <950211192952\_19249167@aol.com>  
Subject: Passed the Test!!!

Hey all, felt like I should share the news. Just today, 2/11 passed my Tech+. Feel pretty good, I started the code 3 weeks ago, but I have been trying to do this for about 25 years or so. Just never worked out. Went to a club special event station and tried to make some contacts on 10 meters to no avail, but I'm still pumped! They say the FCC will give a call sign in a week or so, just call the 800 number to get. Any experience with this? Won't really matter, though, the Two-Fer is still in a bag, and the sloping folded dipole is coiled up in the floor, I'm talking to you guys, and there is worked stacked up here like cord wood! Guess what's gonna get done :-)  
TNX for the encouragement. Hope to work you all on 40m.  
Dan Reynolds, bcdlr@aol.com \_\_9\_\_\_\_\_?

From owner-qrp-1@netcom.com Sat Feb 11 04:04:11 1995  
From: Mike.Czuhajewski@hambbs.wb3ffv.ampr.org (Mike Czuhajewski)  
Subject: QRP Hall of Fame  
Date: Sat, 11 Feb 95 01:22:41 EST5EDT  
Message-Id: <1995Feb11.012241.28444@wb3ffv.ampr.org>

Just a reminder that the QRP ARCI is still accepting nominations for the QRP Hall of Fame (as detailed in the last two issues of the QRP Quarterly), and the deadline of 1 March is getting close. If you want to nominate someone for the QRP Hall of Fame, write up your nominating letter and send it to the Secretary/Treasurer of the QRP ARCI (which is currently Myron Koyle, N8DHT). There is no specified format for nominating letters, but you do have to prove to the voting body that the person is worthy of the honor. (I'm not sure if there is anything in the rules that specifically prohibits someone from nominating themselves for the Hall of Fame, but I can almost guarantee that wouldn't go over too well with the voting body :-)

This award has been around for years and years but only recently got off the ground due to the actions of past-President Paula Franke, WB9TBU; one of the most important things she did was change it from a unanimous vote to a majority vote; requiring a unanimous vote virtually guaranteed no one would ever get the honor :-). Things slipped through the cracks last year, but maybe this year we'll get some more folks elected. The nominations will be voted on by the QRP ARCI board of directors (and officers?) at Dayton. There was only one batch of folks inducted so far, done at Dayton a couple years ago. They were Roy Lewallen, W7EL; Rev George Dobbs, G3RJV; Doug DeMaw, W1FB; and Randy Rand, AA2U. If there is someone you feel is deserving of the honor of induction into the QRP Hall of Fame to accompany

these folks, write up a nomination and send it to the Sec/Treas of the QRP ARCI in the next few weeks. There is no maximum number of people that can be inducted each year, nor is there a requirement that we vote for anyone; if there's only one nomination received, we won't automatically vote for that person just for the sake of having someone inducted--he/she must be worthy of the honor. It's up to you--let the QRP ARCI know who you want in the QRP Hall of Fame. (Need not be a member of the QRP ARCI; this is an award for contributions to the entire QRP community, not just to a single club.) 73 and Queue Our Pea  
DE WA8MCQ

--

Mike Czuhajewski, user of the UniBoard System @ wb3ffv.ampr.org  
E-Mail: Mike.Czuhajewski@hambbs.wb3ffv.ampr.org  
The WB3FFV Amateur Radio BBS - Located in Baltimore, Maryland USA  
Supporting the Amateur Radio Hobby, and TCP/IP InterNetworking

From owner-qrp-l@netcom.com Sat Feb 11 20:00:45 1995  
Message-Id: <199502111602.LAA03634@jfwhome.funhouse.com>  
Subject: Re: QRP Pen circuit  
Date: Sat, 11 Feb 1995 11:02:37 -0500  
From: "John F. Woods" <jfw@jfwhome.funhouse.com>

Dana wrote:

> I don't really  
> want to open the can of worms that continues to rage on on the  
> rec.radio.amateur.antenna newsgroup about SWR and Maxwell; suffice  
> it to say, there really is no notion of collector VSWR.  
> Any comments?

Just one comment.

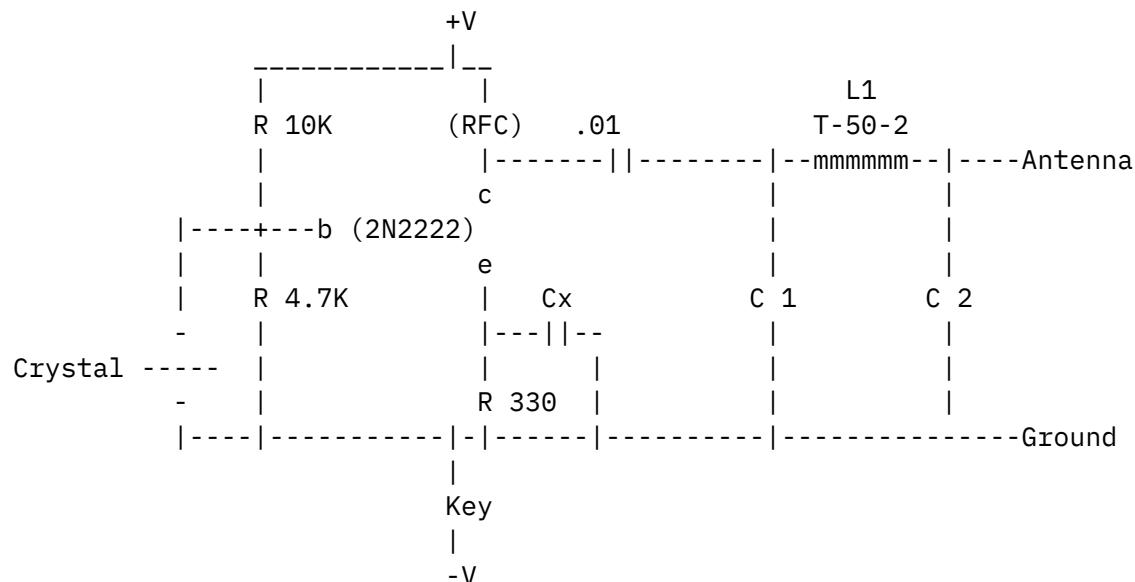
"He keeps going...and going...and going...and going..."

(Those who have actually suffered through that thread on netnews are probably rolling in the aisles at this point...)

From owner-qrp-l@netcom.com Sat Feb 11 20:00:51 1995  
From: Michael Marmor <mmarmor@pluto.njcc.com>  
Message-Id: <199502110632.BAA17082@pluto.njcc.com>  
Subject: QRP Pen circuit  
Date: Sat, 11 Feb 1995 01:32:08 -0500 (EST)

Thanks to everyone who responded to my questions about the QRP Pen circuit on page 52 of K4TWJ's book "How To Get Started In QRP." This single device oscillator project, that only took an hour to build, has lead to several days of learning about RF filters, feedback, SWR and other stuff. There are two main issues people have mailed me about; the output filter and the collector impedance.

Here is the schematic again so you can follow what I am talking about.



#### The Filter:

The book gives component values to build the circuit for the 30, 40 and 80 meter bands by adjusting Cx, C1, C2 and L1. The values for both 30 and 40 meters closely meet expected values for a 0.1 dB ripple Chebyshev low-pass pi-filter according to charts in the Handbook. Yet the 80 meter values seem wrong. I checked 1, 0.1, 0.01 and 0.001 dB ripple 3-pole filters and none of them seem to match the book values. Does the 80 meter version use a different type of filter than the other bands or is it a mistake? Here are the values from the book and my calculated inductance for L1 based on the number of turns on a T50-2 torriod.

Band	C1, C2, Cx	Turns on a T50-2	Calculated L
30	330pF	14	0.98uH
40	470pF	17	1.445uH
80	680pF	34	5.78uH

Assuming the filter should be designed for 1.15 times the operating frequency (I got 1.15 from AK0B's previous qrp-1 post); here are the "correct" values for my 3.579 Mhz crystal frequency.  
 Design Frequency = 3.579 \* 1.15 = 4.12 Mhz

	C1, C2	L1	Turns on T50-2
1dB ripple (2.66 SWR)	1563pF	1.9uH	19.5
0.1dB ripple (1.36 SWR)	797pF	2.2uH	21
0.01dB ripple (1.10 SWR)	486pF	1.9uH	19.5
0.001dB ripple (1.03 SWR)	316pF	1.4uH	16.7

The filter design info is from the '94 ARRL Handbook p 2-52 Table 21.  
The T50-2 is on p 35-4 Table 7 of the same book.  $T=(100)(\text{sq root of } L/50)$ .  
This formula for figuring the inductance per turn does not appear to  
consider wire gauge. I used #22 wire to wind the torriod.  
How do you pronounce Chebyshev anyway? :-)

Collector Impedance:

My questions about why the oscillator stopped at certain settings of  
my transmatch (and into a 50 Ohm dummy load!) resulted in several mails  
about collector impedance. A related issue was why my wattmeter  
read 25mW output at high SWR and only 5mW output at lowest SWR.  
I am still foggy about how these things are related. I did get  
this much from previous posts:

$\text{Load on Collector} = RL = (V_{cc} - V_{ce(SAT)})^2 / 2 * P_o$

Assuming  $V_{ce(SAT)} = .5v$  (from a previous post)

$P_o = .25$  (from the text of the K4TWJ book)

$V_{cc} = 9v$

Then collector impedance is 144.5 Ohms and SWR would be 2.78

If you use  $P_o = .005$  as indicated by my wattmeter you get a collector  
impedance of 7.2K Ohms which gives an SWR of 138.5!!!

Help me sort all this stuff out!! Why does my circuit have 50 times  
less power output than what the book says it should have?

Whew!! Why is learning so complicated?

73 de AA2UJ - Michael Marmor - mmarmor@pluto.njcc.com

From owner-qrp-1@netcom.com Sun Feb 12 02:24:28 1995  
Message-Id: <199502120406.XAA00273@jfwhome.funhouse.com>  
Subject: Re: QRP Pen circuit  
Date: Sat, 11 Feb 1995 23:06:52 -0500  
From: "John F. Woods" <jfw@jfwhome.funhouse.com>

> Help me sort all this stuff out!!

OK, my turn :-).

> Why does my circuit have 50 times  
> less power output than what the book says it should have?

This is actually the right question to start with, rather than worrying about  
"SWR" and other things like that.

Possible reasons for this would be: a low-gain transistor (try substituting for it); a low activity crystal (try substituting if you have a spare); perhaps the capacitor in the emitter bypass circuit is the wrong value, or just plain bad (try substituting different values). This circuit is kind of a cheat; it is a Colpitts oscillator, which is supposed to have a capacitive voltage divider for the feedback path (capacitor from base to emitter, capacitor from emitter to ground). In this circuit, there is no emitter degeneration, and one of the feedback capacitors is the base-to-emitter capacitance of the transistor itself; therefore, you're depending on a characteristic of the transistor which isn't well controlled, so you're going to need to adjust that emitter capacitor for more than just frequency (i.e., fiddle until it works reliably).

Note that a very likely reason that the oscillator stopped at various settings of your transmatch is that at various reactances presented at the collector, the circuit no longer works! (The collector circuit can affect the feedback path in the transistor.)

[One thing sort of puzzles me: there is a DC voltage on the crystal; I was under the impression that crystals didn't like this, perhaps there should be a .01 blocking capacitor between the crystal and the common connection point of the resistors and the transistor base.]

Now, on to the question of the "collector impedance":

> Load on Collector =  $RL = (V_{cc} - V_{ce(SAT)})^2 / 2 * P_o$

This formula does not tell you the impedance of the collector of the transmitter. It tells you the required \_load\_ resistance in order to obtain the given amount of power from a fully saturated class C amplifier! As others have said, the actual impedance of the transistor is very hard to calculate, and completely irrelevant at any case (all together now class, "This is a transmitter, not a generator." :-).

It looks like this transmitter doesn't really want to see a 50 ohm load at the collector; your calculation indicates that it wants 144 ohms to develop .25W, so perhaps the output network should also be performing a transformation as well as filtering. I do think I doubt that it will put out that much, though: I just stumbled across a similar circuit in QRP Classics using a 2N3866 (very high gain transistor) and a +12V Vcc, and \*it\* is rated for 250mW out... Hmm. The less power out, the higher the required collector load, so we get further and further from 50 ohms. (Unless the collector is nowhere near full voltage swing, which looks more and more likely.)

Other tidbits:

> A related issue was why my wattmeter  
> read 25mW output at high SWR and only 5mW output at lowest SWR.

Two likely explanations (both of which could be true): (these were open and 50 ohms, right?) with the output of the SWR meter open, the power reflects back through the meter to the transmitter, where the impedance is nowhere near the 50 ohms of the cabling and meter, so it reflects FORWARD again, and rattles back and forth until losses in the meter and cable and various other components dissipates it; hence on FWD you see higher power than the transmitter is actually generating. Also possible: the transistor just puts out a higher RF voltage with a high impedance applied than with a low impedance (because it's not too heavily loaded, because it has more power internally available for feedback, or whatever). Without a 50 ohm load, your SWR meter is just acting as a poorly calibrated RF voltage meter.

> This formula for figuring the inductance per turn does not appear to  
> consider wire gauge.

It doesn't (much) change the inductance.

> How do you pronounce Chebyshev anyway? :-)

Heh. When I took a "signals and systems" course at MIT, and we got to the chapter that dealt with Chebyshev, the course notes had a footnote attached to his name (in the title), which started with "Also spelled ...", went on for about 4 lines of very small type of all the ways his name has been spelled, ending with the way \*he\* spelled it (with Cyrillic letters).

From owner-qrp-1@netcom.com Sat Feb 11 21:05:48 1995  
Date: Fri, 10 Feb 1995 23:33:12 GMT  
From: frank@yorks.demon.co.uk (FRANK W LEE, G3YCC)  
Message-Id: <306@yorks.demon.co.uk>  
Subject: QRP+

Thanks to all who mentioned the QRP Plus. Trouble is the price in UK is over 600 pounds, which is well over 1200 US dollars. In fact nearly all our gear works out that way - the price you pay in US in dollars, we pay in pounds sterling, so we pay twice as much over here. Someone is making quite a nice profit somewhere! Yes, I could ship one over, but having seen one, I wouldn't fork out the going price asked here in England, might as well buy a full power rig and turn the wick down, or better still, get the soldering iron out. Made quite a few rigs here for both CW and SSB and sure get a kick out of using them ,as we all know.

Present project is an 80 metre tx using a ceramic resonator as a 'VX0', It swings over 100 khz and should be quite a useful lil rig.

72/73



By the way SPRAT stands for small powered radio amateur transmission. A sprat is a small hering like fish and the term 'sprat' is used sometimes to denote someone or thing is of diminitve stature.

Have fun.

--FRANK W LEE, G3YCC,  
KIRK ELLA, HULL (G QRP Nr 042)

From owner-qrp-l@netcom.com Sat Feb 11 19:27:34 1995  
Date: Sat, 11 Feb 1995 09:17:45 -0500 (EST)  
From: CEBIK@utkvx.utk.edu  
Subject: Re: qrp+ discount  
Message-Id: <Pine.3.89.9502110944.A541591166-01000000@utkvx.utk.edu>

On Fri, 10 Feb 1995, Jeff Gold wrote:

> wonder if there would be enough interest to do the same thing with  
> the brass racer paddles.. some one else might want to investigate.  
AC4HF

Addendum: given the recent messages on attaching the mechanism to the underside of the case of at least some rigs, perhaps a version without the base might be made available for attachment to the buyer's own surface.

-73-

LB, W4RNL

From owner-qrp-l@netcom.com Sat Feb 11 22:53:53 1995  
Date: 11 Feb 95 19:47:57 EST  
From: Craig LaBarge <74740.3166@compuserve.com>  
Subject: RF Power Measurements  
Message-Id: <950212004756\_74740.3166\_EHB147-1@CompuServe.COM>

Well, I made some progress on my power measurement discrepancies. (Remember the two watches??) A friend of mine (N3LA) let me borrow a Bird Thruline wattmeter and a Boonton 92EA RF voltmeter to play with. After some experimenting, I found that the rather large discrepancy stemmed from the fact that my MFJ wattmeter reads high and my RF voltage probe reads low!

I connected the Bird wattmeter in series with the MFJ cross-needle wattmeter in my antenna tuner. I found that the MFJ was giving significantly higher readings than the Bird meter. Unfortunately, the only slug I had for the Bird was a 50 watt unit. Thus, resolution at the very bottom of the scale wasn't all that great. But at least I knew the MFJ \*was\* reading high.

Next, I took some comparative measurements using the Boonton RF voltmeter and my Heath RF probe/DVM across the dummy load. My DVM read consistently lower

than the Boonton, but was always well within 10 percent. This was encouraging! Since the Boonton is an accurate lab-quality meter, I decided this would be the "watch" I would go by.

While I was set up, I took readings with both meters on each band at approximately 1 watt and 5 watts (as indicated by the Bird wattmeter). So now I have some idea of the error in the Heath probe so I can come up with a fudge factor if I really want to be fussy. I also used the Boonton to set the output of my 40-40 for about 950 mW (which is how I got started with all this in the first place). :-)

So it looks like my MFJ rigs aren't really putting out 4 - 5 watts after all. It's closer to 3 - 4 watts. But, I guess MFJ uses their own wattmeters to calibrate their transceivers! :-) The other thing I found out is that when I thought I was making contacts with my 40-40 pumping 1.5 watts into my rainspout, I was actually running QRPP! Not too shabby!

73, Craig WB3GCK

P.S. Speaking of rainspouts, I had my first gutter-to-gutter QSO last week on 30 meters with N4EJK in Georgia. He was running 60 watts into his gutter (wow!). Still looking for that first 2-way QRP gutter-to-gutter QSO...

From owner-qrp-1@netcom.com Sun Feb 12 01:00:55 1995  
Date: Sat, 11 Feb 95 18:46:06 -0600  
From: adams@chuck.dallas.sgi.com (chuck adams)  
Message-Id: <9502120046.AA10436@chuck.dallas.sgi.com>  
Subject: RobCap

Rob,

Your mail keeps bouncing at RobCap@aol.com.

949 miles is correct, so 950 is good.

dit dit

Chuck Adams K5FO CP-60 adams@sgi.com

From owner-qrp-1@netcom.com Sat Feb 11 19:35:10 1995  
Date: Sat, 11 Feb 1995 10:10:07 -0500  
Message-Id: <95021110100748@sescva.esc.edu>  
From: pcalcand@sescva.esc.edu (PETER CALCANDY)  
Subject: SSB FOX RESULTS. RETRANSMISSION

>From: SESCVA::PCALCAND "PETER CALCANDY" 8-FEB-1995 23:53:05.38  
To: SMTP%"qrp-1@netcom.com"  
CC: PCALCAND  
Subj: results of the SSB fox outing of Feb 8th.

Well, the fox hunt is over with mixed results. AB4EL was my only contact on 75 meters. I didn't even hear anyone else. I thought the outcome would be the other way around with 40 meters being difficult to copy with all the QRM. 75 meters seemed quite lite. The usual strong signals were not there. I hope it was the band and not my rig.

The following are the results for the evening:

TIME [EST]	FREQ.	CALL	REC.	SENT
8:06	7.226	KC1FB	5 5	5 5
8:14	7.226	AB4EL	5 5	5 5
8:17	7.226	NU8N	3 2	3 2
8:24	7.226	WA4NID	4 4	4 4
8:39	7.219	AD4ZE	5 3	5 5
8:41	7.219	AA4YZ	3 3	2 2
8:43	7.219	N8VAR	2 2	2 2
8:54	7.219	KC5JRR	2 2	4 4
10:07	3.785	AB4EL	3 3	4 4

I sat on 3.785 until 10:30, at which time I moved to 3.901. Heard no one for 15 minutes so I tuned around. I heard AB4EL speaking with someone at 10:45 at 3.908. He faded into the noise. I spent the rest of the hour there with no results.

If you would like a souvenir picture of me sitting at my station, please send \$10 to the address below. If you just want a QSL card, well that's free.

Peter Calcandy  
183 Vineyard Road  
Huntington, New York 11743

Good Luck  
72 + 73  
Peter. N2KPY

From owner-qrp-1@netcom.com Sat Feb 11 13:21:12 1995  
From: JimN00CT@aol.com  
Date: Sat, 11 Feb 1995 09:40:41 -0500

Message-Id: <950211094040\_18893028@aol.com>  
Subject: Stephen Trier

Sorry for the bandwith, y'all.

Hey Stephen--I lost your address, both email and snailmail. The devices are ready to send, just need to know where to! (I feel really silly)

73, Jim

From owner-qrp-l@netcom.com Sat Feb 11 13:15:08 1995  
Date: Sat, 11 Feb 1995 10:37:28 GMT  
From: Goran Hosinsky <hosinsky@royac4.royac.iac.es>  
Message-Id: <9502111037.AA06023@royac4.royac.iac.es>  
Subject: Temperature compensation

Trimmmer capacitors for temperature compensation:

Dia 7mm	2.5-6pf	N033	cat nr	68-802-07
	3.5-13	N470		68-803-06
	7-35	N1500		68-804-54
Dia 10mm	2-6	N033		68-805-04
	6-25	N750		68-807-02
	10-60	N1500		68-808-01

Prices about \$2 each in single lot quantities. They sell for export, I get most of my material here on the Canary Islands, no min order but about \$10 in paperwork + postage.

ELFA  
S-171 17 Solna  
Sweden

Phone +46 - 8 - 735 35 35 Fax +46 - 8 - 730 30 88  
They are shure to speak English.

73  
Goran, EA8YU hosinsky@royac.iac.es

From owner-qrp-l@netcom.com Sat Feb 11 19:23:12 1995  
Message-Id: <sf3c9bf4.055@WordPerfect.com>  
Date: Sat, 11 Feb 1995 11:14:56 -0700  
From: Michael Bendio <MB@WordPerfect.com>  
Subject: Temperature compensation

The 1995 Handbook shows a circuit for temperature compensation on page 14.20. It uses a bridge with matched thermisters in two of the arms to steer a varactor. A pot across the center of the bridge can be

adjusted to give positive or negative temperature compensation.

Michael, WT7J mb@wordperfect.com

From owner-qrp-l@netcom.com Sat Feb 11 06:08:44 1995  
From: JEVERHART@cayman.VF.MMC.COM  
Date: Fri, 10 Feb 1995 22:26:16 -0500 (EST)  
Message-Id: <950210222616.2243160a@carib.vf.mmc.com>  
Subject: Re: Thursday Evening (kinda long, grumpy)

Bob, you wrote:

> Joe - go over for me once again how you used the Autek RF Analyzer to  
> tell how your final tank circuit was going to work and be at 50 ohms? Is  
> this something I can do with my MFJ 249 - now that I think of it probably  
> not since it does not read the reactive resistance. Anyway tell me what  
> you did - maybe this is the excuse I need to by the Autek - hi  
>  
> 72 bob VO1DRB/WA6ERB

Well, glad you asked. Like an ornery teacher, I stuck a few tidbits in my rambling narrative just to see if anyone was paying attention. You get a gold star!

I alluded to this capability of the Autek RF Analyst in my recent review distributed on qrp-l. In addition to measuring and displaying SWR, the RF-1 also measures rf impedance. (I may write this up further in the future.) It will display SWR, impedance, inductance or capacitance, depending on what you tell it to show.

The actual steps were:

1. Turn instrument on.
2. Connect component across measuring terminals.
3. Push button to read frequency.
4. Tune internal oscillator to about 3.5 MHz
5. Push button to read impedance.
6. Adjust oscillator to get impedance reading of 50 ohms.
7. Push button to read frequency.

Elapsed time: less than 20 seconds or less per component!

In fact fewer button pushes are needed. If you press the Frequency and Impedance buttons, the display alternates between frequency and impedance twice a second.

A "trick" was involved here, too. The output network I used is a simple, Q-of-one pi network. In it, each component is equal to the transmission line characteristic impedance. (See my Joe's Quickie in the latest QRP Quarterly for more info.) In this case the impedance is 50 ohms. All I had to do was measure each component independently.

The RF-1 measures impedance directly, but the inductance or capacitance displayed is calculated assuming that the impedance is completely reactive. It doesn't "know" what the resistive and reactive components of the impedance are, nor whether the reactive component is inductive or capacitive. You have to figure this out yourself. Guidelines for doing so are given in the instruction manual. Impedance values less than about 4 ohms or greater than 2000 ohms give an under- or over-range indication. Accuracy is stated at a few percent near 150 ohms, degrading to 20 percent at the measurement extremes. All in all this is a very handy benchtop instrument, not high quality lab grade, but super for a home rf bench.

BTW, the MFJ-249 can't do this (I have use of one of them, too). But the MFJ-259 measures SWR and "RF Resistance." I think this really is RF IMPEDANCE. On the plus side the -251 covers HF and VHF and lets you use its counter with an external source. On the negative side, compared to the Autek Analyzer, it is much larger, much heavier, about 75% more expensive and doesn't have a digital display or direct capacitance or inductance readings.

I took the liberty of cc'ing the qrp list on this 'cause I think others may be interested, too.

72/73,

Joe E. N2CX

From owner-qrp-1@netcom.com Sun Feb 12 02:24:02 1995  
From: JEVERHART@cayman.VF.MMC.COM  
Date: Sat, 11 Feb 1995 23:29:31 -0500 (EST)  
Message-Id: <950211232931.22436d47@carib.vf.mmc.com>  
Subject: Re: Thursday Evening (kinda long, grumpy)

Gang,

I mentioned some problems with the ONER QSK kit in my Thursday night ruminations. I absolutely DO NOT mean to criticize either Kanga, UK or Kanga USA. I did some further troubleshooting and determined that the relay was apparently DOA. I work in aerospace electronics and realize

that infant mortality of parts is not at all uncommon. This is apparently the case here. Dick Kelsey, N8ET, of Kanga USA has graciously offered to replace it for me. My intention was not to embarrass or criticize anyone. Kanga has a very good reputation worldwide and Dick is maintaining that stature here in the U.S. I certainly don't want anyone to get the idea that one of our premier QRP kit houses was in any way at fault.

Love my Kangas!

72/73,

Joe E. N2CX